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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,312	09/30/2003	Hao Pan	SLA1347 (7146.0167)	8186
55648 7590 09/21/2010 KEVIN L. RUSSELL CHERNOFF, VILHAUER, MCCLUNG & STENZEL LLP 1600 ODS TOWER 601 SW SECOND AVENUE PORTLAND, OR 97204				
EXAMINER DHARIA, PRAEODH M				
ART UNIT 2629		PAPER NUMBER		
MAIL DATE 09/21/2010		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/676,312

**Applicant(s)**

PAN ET AL.

**Examiner**

PRABODH M. DHARIA

**Art Unit**

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 April 2010.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 4 is/are allowed.  
6) ☒ Claim(s) 1 and 2 is/are rejected.  
7) ☒ Claim(s) 3 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/G608)  
4) ☐ Interview Summary (PTO-413)  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_  
Paper No(s)/Mail Date See Continuation Sheet

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :11-10-2003, 01-16-2004,10-19-2006,10-31-2006, 03-19-2007,04-29-2010,06-07-2010,08-23-20,12-11-2006.

## **Supplemental Office Action**

### **DETAILED ACTION**

1. **Status:** Please all the replies and correspondence should be addressed to examiner's new art unit 2629. Receipt is acknowledged of papers submitted on 04-29-2010 under request for reconsideration, which have been placed of record in the file. Claims 1-4 are pending in this action.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zimmermann et al. (USP 7,312,820) in view of Wood (USP 6,288,695) and Matsushima (USP 5,976,086).

Regarding claim 1, Zimmermann et al. teaches a method and apparatus for providing virtual processing effects for wide-angle video images ( col. 1, lines 65-67 and col. 2, lines 1-49); Zimmermann et al. further teaches a method of modifying a video image comprising a plurality

of sequential frames to be displayed on a display; receiving at least a portion of a current frame of said video image (col. 2, lines 18-21 and col. 8, Claim 1).

Zimmermann et al. does not teach modifying said current frame to alternatively increase or decrease the luminance output of a portion of said display corresponding to a pixel of said current frame, by overdriving a voltage to said portion to a current value automatically selected based upon: (i) at least one predicted displayed luminance value of said pixel in respective ones of at least one subsequent frame of said video image; and (ii) at least one previously displayed luminance value of said pixel in respective ones of at least one previous frame of said video image.

Wood teaches a method for driving an addressable matrix display with luminescent pixels and display apparatus using the method ( col. 3, lines 23-43); Wood further teaches modifying said current frame to alternatively increase or decrease the luminance output of a portion of said display corresponding to a pixel of said current frame, by overdriving a voltage to said portion to a current value automatically selected (col. 6, lines 2-4).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Zimmermann et al. the feature as taught by Wood in order to put in place the means to alter the intensity of a pixel or portion of a display panel as required.

Zimmermann et al. taken with Wood does not teach a current value automatically selected based upon (i) at least one predicted displayed luminance value of said pixel in respective ones of at least one subsequent frame of said video image; and (ii) at least one

previously displayed luminance value of said pixel in respective ones of at least one previous frame of said video image.

Matsushima teaches an ultrasonic diagnostic apparatus to obtain sequential frames of image data (col. 9, lines 50-67, col. 10, lines 1-67 and col. 11, lines 1-4); Matsushima further teaches a current value automatically selected based upon (i) at least one predicted displayed luminance value of said pixel in respective ones of at least one subsequent frame of said video image; and (ii) at least one previously displayed luminance value of said pixel in respective ones of at least one previous frame of said video image (col. 9, lines 32-36, suggests image processing scheme that with respect to individual pixels, in the event that the subsequent frame is decreased in luminance as compared with the previous frame, the averaging processing shown in equation (1) is practiced on the pixel, alternatively in the event that the subsequent frame is increased in luminance as compared with the previous frame, the averaging processing is not practiced on the pixel, and the pixel value of the subsequent frame is outputted as it is. That is, this scheme is to switchingly select for every pixel as to whether the averaging processing is performed in accordance with a direction of variation of the pixel values).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Zimmermann et al. taken with Wood the feature as taught by Matsushima in order to consider the luminance values of a pixel from a subsequent frame and a previous frame to influence the luminance value of the current pixel.

Relative to claim 2, Zimmermann et al. taken with Wood in view of Matsushima does not specifically teach wherein at least one previously displayed luminance value of a pixel is stored

in a respective frame buffer; said feature being in common practice in the manipulation of data being processed for display. because this step is in common practice and well know in the art, it would have been obvious to a person of ordinary skill in the art at the time of the invention to include this step in the method steps as taught by Zimmermann et al. taken with Wood in view of Matsushima .

***Allowable Subject Matter***

4. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 3, the major difference between the teachings of the prior art of record ( USP 7,312,820, Zimmermann et al.; USP 6,288,695, Wood, and USP 5,976,086, Matsushima) and that of the instant invention is that said prior art does not teach the method where a first previously displayed luminance value is at a state where liquid crystal material associated with said pixel of said display is not at an equilibrium state, and where a second said previously displayed luminance value is at a state where said liquid crystal material associated with said pixel is at an equilibrium state, and where said second said previously displayed luminance value is from the earliest said at least one frame, upon which selection of said current value is based.

5. Claim 4 is allowed.

6. The following is an examiner's statement of reasons for allowance:

Relative to claim 4, the major difference between the teachings of the said prior art of record and that of the instant invention is that said prior art does not teach a method of modifying an image to be displayed on a display; (a) receiving at least a portion of said image; and (b) modifying said image to alternatively increase or decrease the luminance output of a pixel of said image by overdriving said pixel to a current value that is elected based upon: (i) at least one predicted displayed luminance value of said pixel in respective ones of at least one subsequent frame of said image; and (ii) at least one previously displayed luminance value of said pixel in respective ones of at least one previous frame of said image, wherein said at least one previously displayed luminance value of said pixel is stored in a respective frame buffers; where (c) a first said previously displayed luminance value is at a state where liquid crystal material associated with said pixel of said display is not at an equilibrium state, and where a second said previously displayed luminance value is at a state where said liquid crystal material associated with said pixel is at an equilibrium state, and where said second said previously displayed luminance value is from the earliest said at least one frame, upon which selection of said current value is based.

***Response to Arguments***

7. Applicant's arguments filed 04-29-2010 have been fully considered but they are not persuasive.

Applicant argues prior art of Matsushima (US 5,976,086 A) is irrelevant.

Examiner disagrees as the prior art of Matsushima (US 5,976,086 A) discloses in Applicant Admitted Prior Art of the prior art of Matsushima (US 5,976,086 A) discloses



teaching of Japanese Patented publication attached as NPL; suggests image processing scheme that with respect to individual pixels, in the event that the subsequent frame is decreased in luminance as compared with the previous frame, the averaging processing shown in equation (1) is practiced on the pixel, alternatively in the event that the subsequent frame is increased in luminance as compared with the previous frame, the averaging processing is not practiced on the pixel, and the pixel value of the subsequent frame is outputted as it is. That is, this scheme is to switchingly select for every pixel as to whether the averaging processing is performed in accordance with a direction of variation of the pixel values.

Further the prior art of Matsushima (US 5,976,086 A) suggests the prior art of Matsushima (US 5,976,086 A) disclosure of claimed invention operates in the noisy environment, it is difficult to suppress the after-image associated with the portion concerned with the movement within the subject, and thus it is insufficient with respect to the effect of the reduction of noises; in another words; the averaging practice is not suitable for the prior art of Matsushima (US 5,976,086 A) disclosure; however the above recitation does suggests the averaging practice is well known to one ordinary skill in the art.

Fundamentally prior art of Zimmermann et al. (USP 7,312,820) in view of Wood (USP 6,288,695) provides base suggesting a method and apparatus for providing virtual processing effects for wide-angle video images; a method of modifying a video image comprising a plurality of sequential frames to be displayed on a display; receiving at least a portion of a current frame of said video image and further a method for driving an addressable matrix display with luminescent pixels and display apparatus using the method; modifying said current frame to alternatively increase the luminance output of a portion of said display corresponding to a

pixel of said current frame, by overdriving a voltage to said portion to a current value automatically selected in which the claimed invention can be seen as an “improvement” in that a current value automatically selected based upon (i) at least one predicted displayed luminance value of said pixel in respective ones of at least one subsequent frame of said video image; and (ii) at least one previously displayed luminance value of said pixel in respective ones of at least one previous frame of said video image is known technique of Horikawa-Cho et al. (JP 2523594B) disclosed in the prior art of Matsushima (US 5,976,086 A) as Applicant Admitted Prior Art; that is applicable to base process. The known technique of Horikawa-Cho et al. (JP 2523594B) disclosed in the prior art of Matsushima (US 5,976,086 A) as Applicant Admitted Prior Art; would have been recognized by one ordinary skill in the art applicable to the “base” process of Zimmermann et al. (USP 7,312,820) in view of Wood (USP 6,288,695) and the result would have been predictable and resulted in switchingly select for every pixel as to whether the averaging processing is performed in accordance with a direction of variation of the pixel value resulted in improved process. Therefore, the Claimed subject matter would have been obvious to a person having ordinary skill in the art at the time invention was made.

### ***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PRABODH M. DHARIA whose telephone number is (571)272-7668. The examiner can normally be reached on M-F 8-30AM to 5PM.

10. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

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Art Unit: 2629

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/Prabodh M Dharia/

Primary Examiner,

Art Unit 2629

September 17, 2010